

**Amendments to the Specification:**

Please replace paragraph [0010] with the following amended paragraph:

[0010] Figures 3 through 13, in combination, represent Figure 3  
~~represents~~ PLC programming instructions for carrying out a welding  
operation with systems of the type represented in Figures 1 and 2.

Please replace paragraph [0015] with the following amended paragraph:

[0015] In the above manner, the PLC 26 is able to achieve and  
maintain the desired distance between the torch 18 and the weld path 12 by  
an interpolation algorithm. Figures 3 through 11 represent, in combination  
according to their numbered instruction lines, Figure 3 represents PLC  
programming instructions for carrying out a welding operation with the  
welding system 10 represented in Figure 1. At line 15 of the instructions, a  
target torch distance is entered and values for the horizontal and vertical  
axes are stored in registers R0015 and R0020. Line 16 performs the  
necessary conversions to count values within the count range (0 to 32000).  
At lines 23 to 27, the signal (converted from analog to a count value at line

16) from the sensor 24 sensing in the vertical axis is compared to the targeted count value for the vertical position of the torch 18. If repositioning is required based on a greater than (GT\_INT) or less than (LT\_INT) result from the comparison, a command for vertical movement of the torch 18 is made at either line 24 or line 25, respectively, and lowering or raising of the torch 18 is initiated at line 26 or 27, respectively. Lines 30 through 35 perform essentially the identical operations for the horizontal axis as lines 23-27 for the vertical axis. Notably, the instructions provide for positioning of the torch 18 in one axis before positioning is performed in the other axis (or axes). Positioning of the torch 18 is by interpolation because the signals from the sensors 24 are received and compared to the targeted count value continuously during movement of the torch 18 in response to previous signal comparisons, so that the desired torch distance is obtained quickly with extreme accuracy.